DOCUMENT RESUME

ED 308 515 CS 211 917

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TITLE How Writers Use "Real Audience" Feedback: Problem-Solving in Revision.
PUB DATE Mar 89
NOTE 19p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 27-31, 1989).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Audience Response; *Feedback; Grade 11; Grade 12; High Schools; Learning Processes; *Problem Solving; Protocol Analysis; *Revision (Written Composition); Writing Research

ABSTRACT

Contributing to research delineating the cognitive processes of writers who are revising their own texts after feedback from members of their intended audience, a study (1) determined whether more able writers would be more responsive to their readers' feedback than would less able writers; and (2) verified results of a previous study indicating a definable problem-solving revision process. Subjects were 13 eleventh-grade females (six more able and seven less able writers) who composed texts stipulating a twelfth-grade audience, and who revised the texts following feedback from two twelfth-grade readers; data was collected by audiotaped concurrent verbal protocols. Four units of analysis included feedback units, response episodes, revision units, and self-report units. Findings indicated that more able writers are somewhat more accepting of feedback than are less able writers, but that all writers who revise, regardless of ability, follow a problem-solving sequence. Knowledge of this process, both in writers who do and who do not revise, will help educators to identify beliefs and behaviors to which they might direct instruction, and to design the instruction itself. (One figure is included, 26 references are attached, and 4 appendixes containing tasks from the study conclude the paper.) (SR)

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Running Head: Real Audience Feedback

Paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1989. The research reported here is supported in part by a grant from the Office of Educational Research and Improvement to the Center for the Study of Writing at the University of California, Berkeley, and at Carnegie Mellon.

CS211917

How Writers Use "Real Audience" Feedback:

Problem-solving in Revision

The line of research of which this study is a part has the overall objective of delineating the cognitive processes of writers who are revising their own texts after feedback from members of their intended audience. Within that general objective, the present study was designed 1) to determine whether more able writers would be more responsive to their readers' feedback than would less able writers, and 2) to verify results of a previous study, namely, that writers who revise engage in a definable problem-solving process which consists of detecting a problem, setting a new goal, selecting a strategy, and acting.

Theoretical Framework

Research which best reflects the central questions of the study includes work in three areas: writers' awareness of their audience, cognitive processes involved in writing and revising, and instruction in strategies for revising.

Audience awareness appears to be a factor that distinguishes experienced from inexperienced writers (Flower & Hayes, 1980). While composing, experienced writers estimate the probable knowledge and attitudes of their readers and use their representation to initially form and later modify their text. The processes of inexperienced and younger writers, on the other hand, can be characterized as "knowledge-telling", even when these writers are prompted to plan their texts in alternative ways (Burtis, Scardamalia, Bereiter, & Tetroe, 1983). Other studies have shown, however, that given more specific information about their audience,

inexperienced writers can use that information to compose texts (Rafoth, 1985), and to predict the likelihood of reader problems (Schriver, 1987).

Pedagogy has addressed students' need for information about their readers' needs and expectations, traditionally by the practice of commenting on students' written work. Unfortunately, the reasonableness of this method is questioned by research showing the difficulties students have in interpreting comments, whether they be delivered by teachers (Hayes & Daiker, 1984; Sommers, 1980; Ziv, 1984) or peers (Berkenkotter, 1984; Newkirk, 1984). Part of the difficulty may lie in the students' representation of their task. They might construe responding to a "teacher-examiner" (Britton, Burgess, Martin, McLeod, & Rosen, 1975) as a very different activity from responding to a "reader." (Brannon & Knoblach, 1982). Peer response groups, which would seem to be an alternative, often take on the "examiner" role as well (Freedman, 1987). Without experience in responding to readers, it is unlikely that students have had an opportunity to develop strategies for taking into account the needs of real readers.

It does not appear that students cannot be taught how to revise. Research has shown that students can be instructed in the cognitive strategies they need in order to detect where readers might have trouble, and thus where they need to make changes to their texts (Bereiter and Scardamalia, 1987). The problem appears to be rather that students may not use their knowledge. For example, a recent finding by Fitzgerald and Markham (1987) working with sixth grade students shows that, although students can detect where changes are needed and can report to an experimenter on the changes they might make in revising a text, when they are actually revising their work they often either forget or decide not to make the changes. We don't know which. Fitzgerald and Markham suggest that protocols might provide a more direct approach to the question of

how students are using instruction.

Protocol research has succeeded in establishing preliminary models of the cognitive processes writers use as they compose (Bereiter & Scardamalia, 1987; Flower & Hayes, 1981), and as they revise (Hayes, Flower, Schriver, Carey & Stratman, 1986). Revising a problematic text deliberately flawed along several dimensions, writers in the Hayes et al. study are shown to use five subprocesses: task definition, evaluation, selection of the strategy of rewriting, selection of the strategy of revising, and text modification.

The present research differs from this line of inquiry in revision, in that it addresses how writers revise their own texts following reader feedback. It is similar, however, to other process research which uses problem-solving theory as a theoretical framework. Revising after feedback can be viewed as a special case of problem-solving, with feedback providing writers with new and specific information about how their texts have met their goals. Without feedback, writers have recourse to only imagined readers. Without feedback, it is not unreasonable for inexperienced writers, especially students, to hold the naive theory that their readers interpret their work in the same way as they do.

Method and Data Sources

This study is a between-group comparison of more able and less able writers. Subjects were thirteen eleventh-grade females. The more able group consisted of six students who had been identified by their school counselor based on their records and the counselor's acquaintance with them. These students had scored at about the 90th percentile on the Differential Aptitude Test. The less able group consisted of seven students who had been so ranked by their school counselor and who had scored below the

30th percentile on the verbal section of the DAT. Four of the students were enrolled in a class for students with learning disabilities.

The general method for collecting the data was audiotaped concurrent verbal protocols (Ericsson & Simon, 1984). Subjects participated in two sessions of about 45 minutes each. In the first session, subjects composed a text on an assigned topic which stipulated a twelfth-grade student as the audience. The writing scenario stated that the 12th grade student who had difficulty writing was faced with the prospect of composing an essay for a college application. The subjects were asked to identify one problem such 12th grader might have in completing the application, and to suggest several solutions to the problem (Appendix A).

The papers were typed and given to 12th grade students who had been instructed in an interpretive reading method based on reading research. Reading research (Olson, Duffy, & Mack, 1984; Stauffer, 1969; Vipond and Hunt, 1984) suggests that readers engage in two kinds of activity as they read, summarizing and predicting. Following a method based on these findings, the 12th grade students were directed to stop periodically and first summarize the point of the text so far, then make a prediction about what might be forthcoming (Appendix B). The readings were audiotaped and transcribed, with readers' feedback inserted into the text in a smaller contrasting type face (Appendix C).

In the second session one week later, subjects first reread and revised their papers as they wished in order to eliminate any obvious changes that writers would have made independently of the feedback. The writers then received the copies of their texts embedding the feedback of two readers. They were again directed to make any text changes they wished (Appendix D). At the end of the session, writers were asked to

mark a list of the feedback statements with a plus or a minus sign, indicating the feedback that they had remembered using while they revised their texts.

Analysis and Results

There are four units of analysis.

1) *Feedback units* are defined as the statements of the reader.

2) *Response episodes* are protocols units, defined as the initial response of the writer while reading the feedback. The response episode ends with the writer's marking the text.

3) *Revision units* are text units, defined as any visible changes the writer makes after reading feedback.

4) *Self-report units* are part of the feedback review that each subject worked with at the end of the session. These units are defined as the retrospective marks or statements about each feedback unit.

The multiplicity of data sources makes possible several levels of analysis to address the first question of whether the more able writers would make more extensive use of the feedback than would the less able. The most selective analysis required the presence of all three measures indicating response to a feedback unit:

1) a *response episode* that two raters had judged as indicating acceptance of a feedback unit,

2) a *revision unit* indicating visible changes to the text, and

3) a *self-report unit* that the writer remembered using the feedback.

Although a *t* test for differences between the means of the two groups would be the strongest test in a between group comparison, Bartlett's test of homogeneity indicated

that the variablity of the two samples would not allow parametric assumptions about the data. The Wilcoxon-Mann-Whitney non-parametric test shows that the results are significant at .07. One difficulty in using this stringent an analysis is requiring that all three measures be present. In three instances only the protocol evidence was lacking. If only revision units and self-report units are included in the between-group analysis, the probability of a difference is reduced to less than .03.

Garner (1987) has raised the issue of verbal fluency in collecting protocols for young children, and Scardamalia and Bereiter (1983) seem to recognize the difficulty when they suggest methods for encouraging young children to be more fluent. The subjects of the present study had produced fairly fluent protocols while composing. It is reasonable to assume that the first session functioned as a kind of extended practice for the revision session to come. If this were the case, taking a protocol of the second session should not have posed special problems for the writers. It is possible, however, that reading responses to one's own text presents a cognitively more complex task than does composing. Without further specific directives to report reactions to a piece of feedback, subjects may have forgotten to talk aloud. It is also possible, of course, that they were not aware of responses, suppressed them, or had not responses. An analysis specifically comparing verbal patterns while composing and verbal patterns while processing feedback would be needed to examine this issue.

To address the second question of the study, whether writers who revise engage in a definable problem-solving process, only those episodes were considered in which the writer, after reading the feedback, moved into a revision episode. An analysis of these clauses is consistent with results from an earlier study: revising after feedback can be characterized as problem-solving behavior.

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insert figure 1 about here

The sequence (Sitko, 1988) includes:

1. reading and understanding the feedback,
2. assessing the feedback and detecting a problem,
3. searching for a solution, which may include setting a goal and subgoals,
4. selecting a revision strategy, and
5. changing the existing text.

There appear to be three critical steps in this process. The first and third are clearly evident from the protocols. The first is the writer's detecting that the reader has a problem, for example, difficulty in comprehending a point, or making a gist that appears accurate to the reader but that does not match the writer's intention. Writers say, for example: "Wait a minute, they sound confused" or "This is not what I meant." The third critical point is the writer's generating a solution, commonly in the form of a substitution or addition to the text, as other research on revision has shown (Bridwell, 1980; Faigley & Witte, 1984; Matsuhashi and Gordon, 1985.) Problem-solving theory accounts for both steps. Detecting that the reader has a difficulty is an act of problem representation. Generating alternative text can be seen as taking a different solution path to the goal of constructing meaning.

The second critical step, however, is somewhat different from the others. This step is clearly discernible from the convergent evidence of the self-reports. As they assess the feedback, writers report making a spontaneous causal attribution which

influences the next move. The causal attribution theory of motivation (Weiner, 1986) draws together a body of related research into how people's attributions about the causes of success or failure influence their activity. According to this theory, there are three relevant dimensions that can describe attributions: locus of causality (internal, external), controllability (controllable, uncontrollable,) and stability (stable, unstable). A cause of success or failure, for example, may be seen as ability, commonly perceived to be an internal, uncontrollable and stable cause. On the other hand, the cause may be seen as effort, commonly perceived to be a controllable and unstable cause. Whether people are moved to action or not depends on their belief about a cause. It would not make sense to attempt to change that which one believes to be unchangeable.

Applied to revision after feedback, causal attribution theory would predict that writers would not be moved to change text if they attributed the cause of reader's difficulty to a disposition in the reader or in themselves as writers. As a stable and uncontrollable cause of a difficulty, the disposition of the reader or the writer would be perceived to be unchangeable. On the other hand, the theory would predict that if the writers ascribe readers' difficulty to the text, an unstable, external and controllable cause, they might act in order to remove the difficulty by, for example, removing words, adding clarifications, or reordering the text.

Self-report data are consistent with this view of the relationship of causal attribution to motivation. Those cases in which writers did not revise can be sorted into two categories. The first category comprises the cases in which the writers detected a problem but attributed the cause of the problem to their ability. Statements such as "I'm so bad at writing," or "I can't write under time pressure," indicate that the writers attribute the cause of the readers' difficulty to their ability, an internal, uncontrollable (at

least as perceived by the writers), and stable cause. The second category of non-revision decisions shows that writers attribute the cause of the readers' problems to the knowledge, attitudes or beliefs of the readers. Statements such as "I guess they just didn't have the same experience I did," or "They just don't like my writing," indicate that the writers are locating the cause of the problem in their readers. The cause is perceived as internal, stable and uncontrollable. Believing as they do, it would make no sense for either group of writers to change their texts, since they do not perceive the texts to be causally connected to the problem. On the other hand, writers who attribute the problem to some element in the text tend to revise. Detecting that the reader is having a problem, these writers tend to say such things as "What was the matter with that?" and then continue with "Oh, I see; he doesn't understand that this is an example." Such a writer might add the words "An example would be," to make clear to the reader the intended purpose of the problematic sentence. If we consider this activity from the perspective of attribution theory, we see that this writer is locating the cause of the readers' problem in something external, unstable and controllable, namely the text. Given this belief, revising makes sense.

It is possible that the attributional process can be manipulated by shifting the writers' focus of attention from the reader or the self to the text. I am conducting such research in the form or an instructional prompt that represents how writers who revise use feedback, alerts the writers to the three critical decision points, and provides guidance as they reach each point.

Conclusion

It appears that more able writers are somewhat more accepting of feedback than are less able writers. However, all writers who revise, regardless of ability, follow a

problem-solving sequence. Relevant instruction might focus on creating ways of helping students to make use of this apparently readily accessible process. For example, comments on written work might be planned so as to stimulate this process, making it easier for students to see how their words are being interpreted (Freedman, 1987; Hillocks, 1982; Ziv, 1984). Students who represent feedback as "error flagging" are likely to develop strategies for editing but not for substantive revision. Alternative forms of feedback should assist these students in redefining revision (Matsuhashi & Gordon, 1985) and therefore in developing more useful strategies.

Another way students might be assisted in making use of their problem-solving capabilities might be instruction aimed at helping them design their own methods for getting substantive "readerly" feedback. Students might examine the protocols of others and identify the decision points, for example. Ot they might trace some of their own revision processes, reflect on the alternatives they considered, and generate new alternatives for the future.

Focusing on the cognitive processes of writers who do not revise, whether by choice or default, will help educators to identify beliefs and behaviors to which we might direct instruction. The instruction can in turn be derived from a model representing the processes of writers who do revise. Thus, results of studies such as this are useful as we design instruction to help writers make thoughtful and purposeful revisions.

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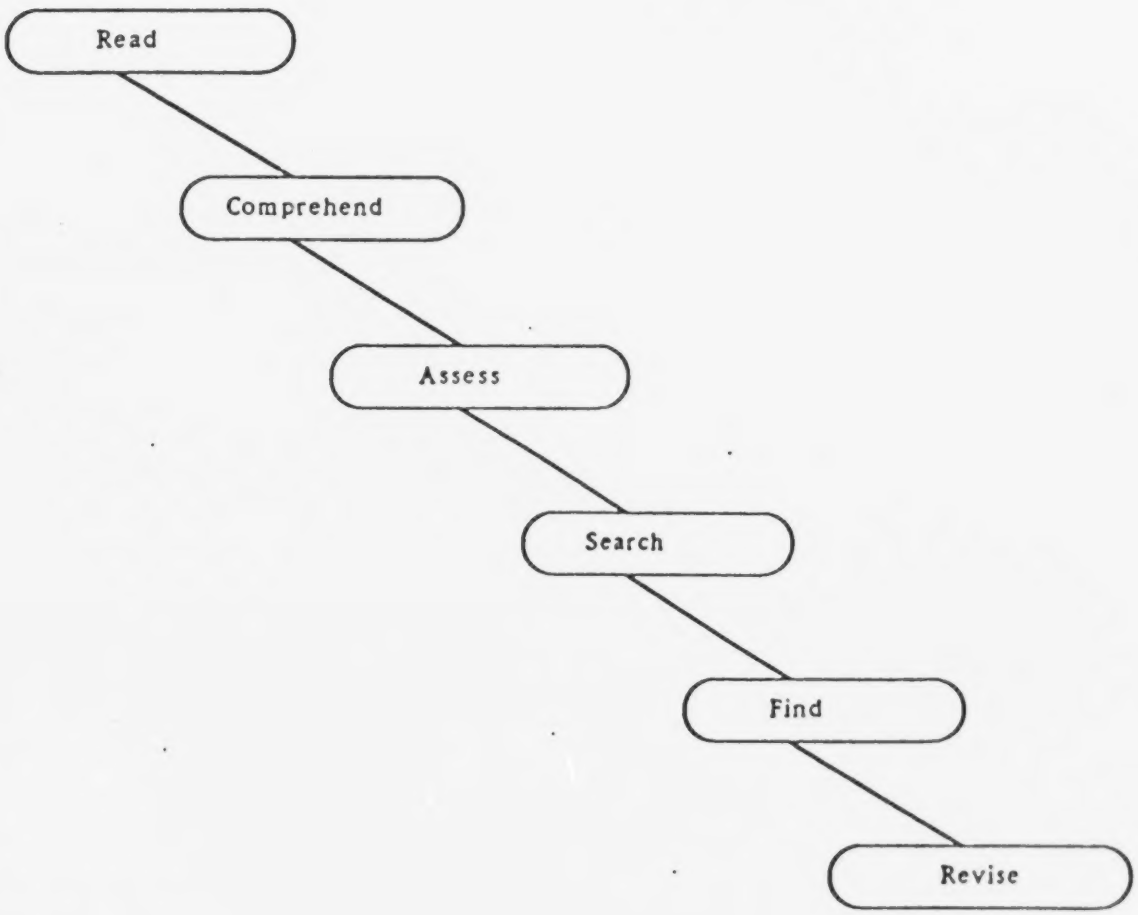

Figure 1. Problem-solving in Revising after Feedback

Appendix A

Writing Task: You know a 12th grade student who has trouble writing. The student has to write a 300-word essay for a college application, and has come to you for help. The essay requires that the applicant choose a book that has been significant in his or her life, and explain in what way(s) the work influenced him or her.

In a short paper, describe one problem the 12th-grade student might have in writing this essay, and suggest several strategies that he or she might use to solve the problem. Remember that your paper is a draft, and that you will have an opportunity to revise it in one week, after seeing how several twelfth-grade readers interpret it.

Appendix B

Reader Task:

This folder contains several first drafts of papers about writing a college application essay. Here is the essay question posed by the college:

Choose a book that has influenced you and explain some way(s) that it has been significant in your life.

The writers of the papers in your folders

1. **identify one problem** a 12th grade student might have in writing this application essay, and
2. **suggest several strategies** the student might use to solve the problem.

I am interested in how readers interpret these papers. Your task is to read the essays, stopping periodically to summarize and to predict where you think the paper is going. The steps in this reading are described on the yellow cards. We will go over them now.

Step 1

(Remember to keep talking aloud. Say everything that is going through your mind as you read and respond to this paper.)

You will see the first part of the paper printed one sentence at a time. The new sentence will be highlighted in yellow. After each sentence ask yourself:

Is this the problem the paper will be about?

If **no**, read the next sentence

If **yes**, do two things:

1. **Restate the problem in your own words.**
2. **Predict what you think will come next in the paper.**
3. **Then go to Step 2, next yellow sheet.**

Step 2

This is the complete essay. Read through it. Stop at the red marks and answer:

1. **What is the point of this section?**
2. **What do I predict is coming next?**

When you have read the complete paper, go on to Step 3.

Step 3

Now that you have read the whole paper, please summarize in your own words:

1. **Summarize the problem the writer talked about.**
2. **Is there anything confusing in the paper? Anything you disagreed with?**
3. **What do you think is best about this paper?**

Appendix C

Reader Feedback Inserted into Text

First the student must choose a book. One problem that the student might have is figuring out the different ways the book has really influenced them. [1] **It seems like the writer is going to tell me what problems a student might have in talking about a book that influenced them.** [2] **It seems like after this sentence the author is going to describe that one problem and probably tell me what to do with it.** The student could start this paper by writing an introduction on the book and what it was about and how it influenced them. [3] **This seems like a response to the statement, "One problem that the student might have is figuring out the different ways," OK. In order to figure out the different ways, the author is saying that the student could start the paper by writing an introduction on the book, and what it was, and how it influenced them. That sounds more to me like that's an outline for the whole paper. Well, that's good. That's an outline for the whole paper: introduction on the book, what it was about, and how it influenced them. That's good. Three good points.** [4] **Let's see if the author follows through by expanding on those three points.** The following short paragraphs could talk about the things that influenced them and . . . and go into detail about them, and how they use this in their. . in their lives today. [5] **Let me do that again. (rereads) Oh, I see. At first I thought that "the following short paragraphs" meant her paper, but what she means is that the person writing about this book, that their short paragraphs would talk about the things that influenced them. OK. Got it. (laugh)**

Appendix D

Revising Task:

Step 1: Make any changes you wish to the typed copy of your first draft. Please use black pencil. Do not erase. Draw a line through any words you might want to erase.

Step 2: When you have completed step 1, ask me for the transcripts of your two readers. These transcripts are typed from tapes of your readers' interpretations of your draft. You may mark these copies if you wish. Keep talking aloud as you work with this feedback.

Step 3: Make any changes you wish to the typed copy of your draft in light of the feedback. Please use pen. Do not erase. Draw a line through any words you might want to erase.